ABSTRACT

A code division multiple access user equipment is used in receiving a plurality of data signals over a shared spectrum. Each received data signal experiences a similar channel response. A combined signal of the received data signals is received over the shared spectrum. The combined signal is sampled at a multiple of the chip rate. A channel response is estimated as a channel response matrix at the multiple of the chip rate. A padded version of a spread data vector of a size corresponding to the multiple chip rate using a column of the channel response matrix, the estimated channel response matrix, the samples and a fourier transform. The spread data vector is estimated by eliminating elements of the padded version so that the estimated spread data vector is of a size corresponding to the chip rate.